

Claims

1. A method of obtaining an image of buried structures in an object, comprising:
  - providing a camera for imaging visual and infrared-images;
  - providing a bounded infrared light source;
  - 5 – partly irradiating said object by said bounded light source;
  - imaging a non-irradiated area of said object by said camera to image said buried structure; and
  - combining said buried structure image with a visual image of said object.
- 10 2. A method according to claim 1 wherein said irradiation is varied in time so as to provide a full image by subsequent combining of partial images.
3. A method according to claim 1 or 2, wherein said image is obtained by scanning a light beam over said object.
4. A method according to claim 1 or 2, wherein said image is obtained by  
15 subsequently irradiating said object by predetermined patterns.
5. A method according to claim 4, wherein said partial image is obtained by alternately irradiating said object by said predetermined complementary patterns.
6. A method according to claim 4 or 5, wherein said patterns are matrix-  
20 patterns, line patterns, dot patterns or concentric patterns.
7. A method according to any of claims 4-6, wherein said object is irradiated only at predetermined positions that are spaced apart.

8. A method according to any of claims 1-7, wherein said image is obtained by a CMOS-camera.
9. A method according to any of the preceding claims, further comprising:
- aligning said infrared light source with a visual light source;
  - 5 — providing a first edge analysis of said infrared image;
  - providing a second edge analysis of said visual image;
  - comparing said first and second edge analysis; and
  - discarding edges in said infrared image that are also detected in said second image.
- 10 10. A method according to claim 9, further comprising:
- correcting said first image to discard saturated image areas.
11. A method according to any of the preceding claims, wherein said images are provided stereoscopically.
12. A method according to any of the preceding claims 9- 10, wherein said
- 15 first image is spectrally analysed, and wherein said spectral analysis is projected into said second image.
13. A method according to claim 12, wherein said spectral analysis comprises a pulsatility analysis and/or a heart beat frequency analysis and/or respiratory frequency analysis.
- 20 14. A method of enhancing imaging of buried structures in an object, comprising:
- providing a first light source for providing first light of a wavelength that images said buried structure;
  - providing a second light of a wavelength that visually images said
  - 25 object, aligned with said first light source;
  - obtaining a first image by irradiating said object with said first light ;

- providing an edge analysis of said first image in order to detect the edges of said buried structure;
- obtaining a second image by irradiating said object with said second light;
- 5 – providing an edge analysis of said second image;
- comparing the edge analysis of said second image with the edge analysis of said first image;
- discarding edges in said first image that are also detected in said second image; and
- 10 – combining said first and second images for defining edges of said buried structure in said visual image.

15. A method according to claim 14, further comprising correcting said first image to discard saturated image areas.

16. System for obtaining an image of buried structures in an object,
- 15 comprising:
- a bounded light source for irradiating said object by light for providing a first image of said buried structure and for providing a second visual image of said object;
  - a camera device for obtaining said first and second images; and
  - 20 – a processing device arranged to:
    - o providing a gradient analysis of said first image in order to detect the edges of said buried structure; and for providing a gradient analysis of said second image;
    - o comparing the gradient analysis of said second image with the
    - 25 gradient analysis of said first image;
    - o discarding edges in said first image that are also detected in said second image; and

- combining said first and second images for defining edges of said buried structure in said visual image.

17. A system according to claim 16 further comprising:
- a puncture tool for puncturing human tissue; and
  - 5 – an IR light source provided in said puncture tool.
18. A system according to claim 17, wherein said IR light is aligned along said puncture tool.
19. A system according to claim 17 or 18, wherein said IR light is provided in a tip of said puncture tool.
- 10 20. A system according to any of claims 17-19, wherein said puncture tool is provided with an IR radiating coating.
21. A system according to any of claims 17-20, wherein the IR light source and the bounded light source are alternately activated.
22. A puncture tool for puncturing human tissue; and an IR light source
- 15 provided in said puncture tool.